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| 10/686,557 | 10/16/2003 | Kiyohiro Akiyama | 045237-0122 | 3492 |
| 22428 | 7590 | 10/05/2005 | EXAMINER | |
| FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007 | | | ZEADE, BERTRAND | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2875 | |

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/686,557

Applicant(s)

AKIYAMA, KIYOHIRO

Examiner

Bertrand Zeade

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10 and 13-17 is/are rejected.
- 7) ☒ Claim(s) 3,4,11 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/16/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: Claim 5 cites in lines 4---one the first light emitting diode, one the one second light emitting diode---. It is unclear to know what the word "**one**" stands for. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 9 cites in lines 9 "the reflection surfaces and the mirror finished surfaces are alternately provided over almost entire of the light emission area". How does the light escape the lamp since the lens has the light emission area with the reflection surfaces that reflect the light in, and the plurality of mirror finished surfaces that do not function to reflect the light emitted by the LED but function to reflect an outside light incident from the lamp lens. It is unclear how the functional combination of reflection surfaces and the mirrors finished surfaces is alternately operated or defining the claimed theoretical simulation.

5. Claims 10-17 are also are rejected under 35 U.S.C. 112, second paragraph, as being indefinite because of their dependency from claim 9.

6. Claim 9 recites the limitation "a light" in lines 14. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 9, lines 17-21 as cited "and each of the mirror finished surfaces is arranged on a segment that connects the light emission source of the light emitting diode to one of boundaries between the reflection surfaces and the mirror finished surfaces, or arranged on an opposite side to a light reflection direction of the reflection surfaces from the segment". This section of the claimed limitation is redundant, because the link between the mirror finished surfaces, the segment, the light emission source of LEDs and one of the boundaries between the reflection surfaces and the mirror finished surfaces is superfluous.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-2, 5-10, 13- 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano (U.S.6,814,475) in view of Hitora (U.S. 5,642,933).

Regarding claim 1, Amano discloses an LED-type vehicular lamp having: a first light emitting diode (22, fig. 2) that is arranged at a first location and that

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emits light in a first area; a second light emitting diode (48, fig. 2) that is arranged at a second location different from the first location and that emits light in a second area;

- a lamp lens (14, fig. 2) having a light emission area;
- a plurality of first reflection surfaces (26c, fig. 2) that reflect the light emitted by the first light emitting diode (22, fig.2) toward the lamp lens (14, fig. 2);
- and a plurality of second reflection surfaces (46,fig. 2) that reflect light emitted by the second light emitting diode (48, fig. 2) toward the lamp lens (14, fig. 2), wherein the first reflection surfaces (26c) and the second reflection surfaces (48c) are alternately provided over almost entire of the light emission area of the lamp lens (14, fig. 2);
- the first reflection surfaces (26c, fig. 2) are arranged almost in the first area, the second reflection surfaces (48c, fig.2) are arranged almost in the second area,

Regarding claim 2, a plurality of first linear Fresnel prism elements (32,fig. 2) arranged between the first light emitting diode (22, fig.2) and the first reflection surfaces (226c, fig. 2);

- and a plurality of second linear Fresnel prism elements (52, fig. 2) arranged between the second light emitting diode (48, fig. 2) and the second reflection surfaces (46c, fig. 2), wherein the first linear Fresnel prism elements (32, fig.2) transmit the light emitted by the first light emitting diode (22, fig. 2) almost as it progress in a

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cross section that includes the first light emitting diode and the first reflection surfaces (26c), refract and transmit the light emitted by the first light emitting diode as almost parallel light in a cross section orthogonal to a light reflection direction of the first reflection surfaces,

- and the second linear Fresnel prism elements transmit the light emitted by the second light emitting diode (48, fig.2) almost as it progress in a cross section that includes the second light emitting diode and the second reflection surfaces, and refract and transmit the light from the second light emitting diode as almost parallel light in a cross section orthogonal to a light reflection direction of the second reflection surfaces.

Regarding claim 5, a plurality of the first light emitting diodes (22, 48, fig. 3) and the second light emitting diodes (48, fig.3) are provided;

- one of the first light emitting diodes (22), one of the second light emitting diodes, the first reflection surfaces (26A-26E, fig. 3), and the second reflection surfaces (46A-46E) are integrated into an arrangement, so that there are a plurality of the arrangements, wherein each of the arrangement is positioned at a different location in a light reflection direction of the first reflection surfaces (26A-26E) and the second reflection surfaces (48A-48E).

Regarding claim 7, an optical axis (Ax1) direction of the first reflection surfaces (26) differs from an optical axis (Ax2) direction of the second reflection surfaces (46).

Regarding claim 8 as shown in (fig. 2), each of the first reflection surfaces (26) and each of the second reflection surfaces (46) is divided into a plurality of reflection surfaces.

Regarding claim 9, Amano ('475) discloses an LED-type vehicular lamp having:

- a light emitting diode (22/48, 2) that emits light;
- a lamp lens (14, fig.2) having a light emission area;
- a plurality of reflection surfaces (26c and 46c, fig. 2) that reflect the lights emitted by the light emitting diode;
- a plurality of mirror surfaces or reflex reflector (col. 6, lines 26-28) that do not function to reflect the light emitted by the light emitting diode but function to reflect an outside light incident from the lamp lens (14, figs. 1-2) wherein the reflection surfaces and the mirror finished surfaces (26c/46c) are alternately provided over almost entire of the light emission area, the reflection surfaces are arranged almost within a range of an illumination angle of the light emitted by the light emitting diode (22/48), each of the reflection surface is a part of a rotational element having a focus on a light emission source of the light emitting diode such that the element corresponding to the reflection surfaces (26c/46c) that are farther from the light emitting diode have longer focal lengths, and each of the mirror finished surfaces. Also as a **redundant** arrangement on a segment that connects the light emission source of the light emitting diode to one of boundaries between the reflection surfaces, and as the **redundant** arrangement the mirror finished surfaces, or

arranged on an opposite side to a light reflection direction of the reflection surfaces from the segment.

Regarding claim 10, a plurality of linear Fresno prism elements (32, fig. 2) arranged between the light emitting diode (22, fig. 2) and the reflection surfaces (26c, fig. 2), wherein the linear Fresno prism elements transmit the light emitted by the light emitting diode almost as it progress in a cross section that includes the reflection surfaces (26c), and the light emitting diode (22), and refract and transmit the light emitted by the light emitting diode as almost parallel lights in a cross section orthogonal to the light reflection direction of the reflection surfaces (26c).

Regarding claim 13, a plurality of the light emitting diodes (22, 48, fig. 2) are provided, wherein one the light emitting diode and the reflection surfaces are integrated into an arrangement, so that there are a plurality of the arrangements, wherein each of the arrangement is positioned at a different location in a light reflection direction of the reflection surfaces (26c, 46c).

Regarding claim 14, a 0° axis inherent of the light emitting diode is inclined toward a reflection surfaces-side relative to an optical axis (Ax1/Ax2) of the reflection surfaces (26c, 46c, fig. 2).

Regarding claim 15, the reflection surfaces (26c and 46c, fig. 2) have different optical axis directions.

Regarding claim 16, each of the reflection surfaces is divided into a plurality of reflection surfaces (26c, 46c, fig. 2).

Regarding claim 17, each of the mirror finished surfaces is divided into a plurality of zigzag surfaces as shown in (figs. 3-4).

Amano does not disclose the paraboloids as applied to claims 1 and 9 above.

However, Hitora discloses a light source structure having: each of the first reflection surface (23/21, fig. 3) is a part of a rotational purebloods having a focus on a Eight emission source of the first light emitting diode (1, fig. 3) such that the purebloods corresponding to the first reflection surfaces (21-24, fig. 3) that are farther from the first light emitting diode (1) have longer focal lengths, and each of the second reflection surface is a part of a rotational purebloods having a focus on a light emission source of the second LED (1) such that the purebloods corresponding to the second reflection surfaces (opposite the first reflection surfaces 21-23) that are farther from the second LED (1) have longer focal lengths.

Regarding claim 6 as shown in (fig. 8B) of Hitora, a 0° axis of the first light emitting diode is inclined toward a first reflection surfaces-side relative to an optical axis of the first reflection surfaces, and a 0° axis of the second light emitting diode is inclined toward the second reflection surfaces-side relative to an optical axis of the second reflection surfaces.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the LED-type vehicular lamp of Amano with the parabolic taught by Hitora, since parabolic of Hitora would provide Amano with an

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equivalent typical emission angle of a wide viewing LEDs light source structure that ranges from low degree to high degree; rotating, the reflection surface can be parabolic surfaces, such that if the reflection surfaces are formed by flat surfaces, the light reflection surfaces can be view evenly.

Allowable Subject Matter

12. Claims 3-4 and 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to suggest a plurality of at least one of concave portions and convex portions are provided, in portions of the inner lens almost corresponding to ranges in which reflected lights from the second reflection surfaces are incident respectively, in such a manner that the convex portions project on a second reflection surfaces-side and the concave portions recess on an opposite side to the second reflection surfaces-side, and the concave portions and the convex portions of the inner lens are alternately provided in the light emission area of the lamp lens almost over the entire light emission area to correspond to the first reflection surfaces and the second reflection surfaces respectively.

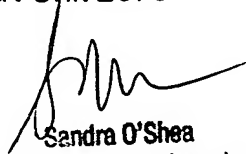
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bertrand Zeade whose telephone number is 571-272-2387. The examiner can normally be reached on 9:30 AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571-272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bertrand Zeade
Examiner
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